DEPARTMENT OF THE AIR FORCE AFMS 38AI
Headquarters, US Air Force
Washington DC 20330 19 September 1994

Telephone Installation - Outside - Plant Maintenance Section

1. Mission Statement. Telephone Outside Plant maintains all telephone equipment outside of the Telephone Central Office Switch to provide command and control and administrative telephone service for the objective wing including all active duty military, Air National Guard, Reserve, Department of Defense, and non-appropriated fund organizations. It is responsible for telephone surveys, installations, removals, relocations and repairs of telephones, key equipment, data and interoffice communication systems.

2. Authority. The 21- series of Air Force Instructions (AFI)contains responsibilities, policy, and procedural guidance for the Telephone Outside Plant element. This standard was developed in accordance with policy and procedures contained in AFMAN 38-208.

3. Applicability. This section applies to all objective wing Telephone Outside Plant Elements in AMC, ACC, USAFE, PACAF, and AETC UPT bases during peacetime. It does not apply to:

3.1. Air National Guard or Air Force Reserve installations.

3.2. Combat Communications units.

3.3. Locations undergoing AFI 38-203 cost comparison studies.

3.4. Locations that have completed AFI 38-203 cost comparison studies. Both a positive and negative mission variance must be developed for all work within the organization that has undergone a cost comparison study.

4. Core Composition. The following were considered to determine the core manpower required for Telephone Outside Plant Maintenance:

4.1. An objective wing population of 3,055, 72 Primary Aircraft Assigned, located on a base comprising 3500 acres. To support this mission, a digital telephone switching system with 1632 official telephone numbers (includes class B telephones for overseas locations), and 4878 telephone instruments are needed, and 916 non-switched circuits are in use. The ratio of key telephone instruments to single line instruments is 63 to 37.

4.2. The level of service, provided to support wing flying hours of 16 hours per day, 7 days per week, is single shift maintenance of 40 hours per week, plus on call maintenance for unscheduled outages. Requests for new services or changes will be completed within 30 days.

4.3. Restoral priorities will be established and followed when personnel respond to multiple outages.

4.4. Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of standard indirect work are Supervision, Administration, Meetings, Training, Supply, Equipment Maintenance, and Cleanup. Core man-hours for indirect work are computed in with the processes.

4.5. Core Manpower Required. 11

4.6. Core Range. 1 - 72 authorizations, which supports a maximum population of 50,000 people.

4.7. Programing Factor. Line Equipment Numbers.

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No. of Pages: 10
OPR: HQ AFMEA/PLDM
OCR: AFCOMMET/MOMC
Distribution: F

5. Core Composition Variables. The following factors need to be considered to determine changes to the core composition.

5.1. Increased authorizations in wing population are assumed to support an increase of aircraft assigned. These increases are also assumed to increase at a rate of 24 aircraft, and their associated manpower, at a time. Incremental increases in numbers of aircraft will generate an increase in wing population which requires official telephone numbers. This will require additional manpower to support this increase of wing population.

5.2. Other increases to wing population that are not aligned with the wing's original mission, support and flying of 72 Primary Aircraft Assigned, will be handled as a variance.

6. Standard Data:

6.1. Classification. Type III

6.2. Approval Date. 1 March 1993

6.3. Man-Hour Data Source. Workshop Measurement

6.4. Man-Hour Equation. $4.47X^{.78314623}$ (Poer Equation) -- Where "X" equals the LENs count.

6.5. Workload Factor.

6.5.1. Title. Line Equipment Number (LEN) assigned in software.

6.5.2. Definition. The number of LENs (official telephone numbers in use) maintained by the element.

6.5.3. Source. Central Office records that are maintained by unit Telephone Inside Plant Maintenance Personnel. Advise the switch technician to count one for each LEN/line assigned in the system software.

6.6. Study Team.

6.6.1. Lead Technicians. Capt Chapman, 1Lt Reynolds, Sgt Ethridge (AFCOMMET/MEMB).

6.6.2. Functional Representative. CMSgt Ward (AFC4A/SYVS).

6.6.3. Program Manager. MSgt Dennis Deas (HQ AFMEA/MEMS).

7. Application Instructions for Government Maintained Plant:

7.1. Step 1. Determine Line Equipment Number (LENs) count.

7.2. Step 2. Substitute this figure for "X" in the Man-Hour equation (Ref Para 6.4.).

7.3. Step 3. Determine variance man-hours applicable to your location (Ref attachment 3).

7.4. Step 4. Add/Subtract the man-hours obtained in step 3 to the man-hours obtained in step 2.

7.5. Step 5. Divide the resulting man-hours by the appropriate MAF and overload factor and use current rounding rules to determine whole manpower.

8. Application Instructions for Leased/Contracted Plant:

8.1. Step 1. Determine Line Equipment Number (LENS) count.

8.2. Step 2. Substitute this figure for "X" in the following equation:

$.447X^{.78300587}$ (Power Equation) -- Where "X" equals the LENs count.

8.3. Step 3. Divide the resulting man-hours by the appropriate MAF and overload factor and use current rounding rules to determine whole manpower. This is your manpower for telephone survey work. (Ref attachment 1, process 3)

9. Statement of Conditions. The environmental conditions of this function's local area can impact the work center's ability to perform work identified in the Element Description. These conditions are as follows.

9.1. Physical Conditions. The work center is not located with the equipment it services. Travel time is necessary to accomplish direct categories of work. The age and construction of the buildings, mode of cabling within the building (e.g., under floor ducting), and number of civilian contractors supported (Air Force escorted entry of contractors) may directly impact the direct categories of work.

9.2. Directed Performance Requirements. All technical orders and work cards are directed performance requirements for this work center. The Telephone Outside Plant maintenance function is affected by Air Force Occupational Safety and Health (AFOSH) standards requiring a two-man policy for pole climbing. In work centers with a single authorization, Telephone Outside Plant Maintenance will have to borrow a technician from a work center that has a certified pole climber, for example; Antenna or Cable Maintenance.

9.3. Climatic Conditions.

9.3.1. Precipitation. The amount of rain, snow, and ice may impact the service response time.

9.3.2. Wind Velocity. Typhoons/hurricanes, tornadoes, and high gusty winds may delay any outside activities, e.g., pole climbing.

9.3.3. Lighting and Thunderstorms. Lightning and thunder storms may impact service response time.

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4 Attachments
1. Element Description
2. Standard Manpower Table
3. Variances
4. Process Analysis Summary

ELEMENT DESCRIPTION

Telephone Installation-Outside Plant Maintenance Section

1. TRAVEL. Performs associated travel to and from work center and work site, or from work site to work site, to perform required maintenance.

2. REPAIRS EQUIPMENT. Receives trouble ticket; coordinates with appropriate agency/customer; obtains necessary test equipment, special tools, and material; loads/unloads vehicle; performs site survey; prepares work site; verifies and isolates fault; performs repair; checks operation; performs inspection IAW applicable directive; corrects deficiency; completes documentation; cleans work site; turns in documentation, test equipment, and special tools; assists Quality Control (QC) in performance of technical or special inspection of the work center/work site to identify administrative, managerial, or technical problems.

3. TELEPHONE SURVEY. Manages leased C4 systems service; prepares or reviews request for communications service; prepares feeder request for service; performs visual inspection of job area; determines equipment/materials required, availability of facilities and other resources required to support the request; prepares cost estimate, narrative description of proposed work plan, and contract action; maintains TCO signature card, performs contract administration for telephone systems and services, and prepares service orders. Verifies telephone equipment bills.

4. INSTALLS CIRCUITS. Obtains installation work order and reviews for necessary test equipment, special tools, and material; coordinates with appropriate agency; obtains necessary test equipment, special tools, and material; loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; verifies circuit with central office and performs transmission check; terminates cross-connect; prepares/updates station record; cleans work site; turns in test equipment, special tools, and excess materials; updates vehicle bench stock and shop records; and turns in work order.

5. INSTALLS TELEPHONES. Obtains installation work order and reviews for necessary test equipment, special tools and material; coordinates with appropriate agency; obtains necessary test equipment, special tools, and material; loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; plugs in phone; verifies operability, troubleshoots equipment; programs features and sets option switches; verifies operation and features with central office and/or customer; demonstrates features to customer; labels installed item; prepares/updates station record; cleans work site; turns in test equipment, special tools, and excess materials; updates vehicle bench stock and shop records; and turns in work order.

6. INSTALLS EQUIPMENT. Obtains installation work order and reviews for necessary test equipment, special tools and material; coordinates with appropriate agency; obtains necessary test equipment, special tools, and material; loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; lays out and assembles applicable equipment parts; builds and mounts backboard; installs main equipment and parts; straps equipment; applies ground; installs ancillary equipment; troubleshoots equipment and systems; programs features and sets option switches; verifies operation and features with central office and/or customer; demonstrates features to customer; labels installed item; prepares/updates station record; cleans work site; turns in test equipment, special tools and excess materials; updates vehicle bench stock and shop records; and turns in work order.

7. INSTALLS CABLE. Obtains installation work order and reviews for necessary test equipment, special tools and material; coordinates with appropriate agency; obtains necessary test equipment, special tools, and material; loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; measures, cuts, labels, runs, secures, butts end, terminates cable with connectors; applies ground; cleans work site; turns in test equipment, special tools and excess materials; updates vehicle bench stock and shop records; and turns in work order.

8. PERFORMS CABLE PAIR TEST AND TAG. Obtains and reviews work order; coordinates with appropriate agency; obtains necessary special tools and test equipment; loads/unloads vehicle; verifies work order with customer; prepares work site; documents test and/or cable count verification; tags cable pair; updates station

record; cleans work site; turns in special tools and test equipment; turns in work order and test or cable verification documentation.

9. REMOVES CIRCUITS. Obtains work order and reviews for necessary special tools; coordinates with appropriate agency; obtains special tools, and loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; verifies circuit with central office and disconnects jumpers; cleans work site; turns in special tools; updates shop record; and turns in work order.

10. REMOVES TELEPHONES. Obtains work order and reviews for necessary special tools; coordinates with appropriate agency; obtains special tools, loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; disconnects and removes phone; removes tag; updates station record; cleans work site; turns in special tools; updates shop record; disassembles, inspects and checks operation of removed item; cleans, bags and tags item; turns item into shop supply for appropriate disposal; completes documentation; and turns in work order.

11. REMOVES EQUIPMENT. Obtains work order and reviews for necessary special tools; coordinates with appropriate agency; obtains special tools; loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; disconnects/dismantles equipment as required; removes main equipment; cleans work site; turns in special tools; disassembles, inspects and checks operation of removed item; cleans, bags and tags item; turns item into shop supply for appropriate disposal; completes documentation; and turns in work order.

12. REMOVES CABLE. Obtains work order and reviews for necessary special tools; coordinates with appropriate agency; obtains special tools; loads/unloads vehicle; validates work order with customer; performs site survey; prepares work site; disconnects cable termination; removes cable; cleans work site; turns in special tools; updates shop record; turns in work order; turns cable into shop supply for appropriate disposal; completes documentation; and turns in work order.

13. PROCESSES LIST OF MATERIAL (LOM) AND MATERIAL CONTROL. Receives LOM; checks for on-hand material; researches nomenclature and stock number; orders material; receives and stocks material; issues material; completes documentation; determines authorized quantities, 8% of the total instruments and associated equipment in use and programmed for specific use; checks stock level; determines material requiring turn-in to supply/salvage; completes appropriate turn-in documentation; loads vehicle with material to be turned in; coordinates with supply/salvage; off loads material; and files document.

STANDARD MANPOWER TABLE											
WORK CENTER/FAC Telephone Outside Plant Section/38AI GOVERNMENT MAINTAINED PLANT			APPLICABILITY MAN-HOUR RANGE 160.7 - 11570.4								
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT								
Telephone and Data Circuitry Equip Crftmn	2E773	TSG						1	1	1	1
Telephone and Data Circuitry Equip Jrnymn	2E753	SSG	1	1	1	1	1	2	2	2	3
Telephone and Data Circuitry Equip Jrnymn	2E753	SRA		1	2	3	3	2	2	3	3
Telephone and Data Circuitry Equip Apr	2E733	A1C					1	1	2	2	2
TOTAL			1	2	3	4	5	6	7	8	9
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT								
Telephone and Data Circuitry Equip Crftmn	2E773	MSG				1	1	1	1	1	1
Telephone and Data Circuitry Equip Crftmn	2E773	TSG	1	1	1	1	1	1	1	1	1
Telephone and Data Circuitry Equip Jrnymn	2E753	SSG	3	3	4	4	4	4	5	5	5
Telephone and Data Circuitry Equip Jrnymn	2E753	SRA	3	4	4	4	4	5	5	5	6
Telephone and Data Circuitry Equip Apr	2E733	A1C	3	3	3	3	4	4	4	5	5
TOTAL			10	11	12	13	14	15	16	17	18

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STANDARD MANPOWER TABLE												
WORK CENTER/FAC Telephone Outside Plant Section/38AI GOVERNMENT MAINTAINED PLANT			APPLICABILITY MAN-HOUR RANGE 160.7 - 11570.4									
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT									
Telephone and Data Circuitry Equip Crftmn	2E773	MSG	1	1	1	1	1	1	1	1	1	
Telephone and Data Circuitry Equip Crftmn	2E773	TSG	1	1	1	1	1	1	2	2	2	
Telephone and Data Circuitry Equip Jrnymn	2E753	SSG	6	6	6	7	7	7	7	8	8	
Telephone and Data Circuitry Equip Jrnymn	2E753	SRA	6	6	7	7	7	8	8	8	8	
Telephone and Data Circuitry Equip Apr	2E733	A1C	5	6	6	6	7	7	7	7	8	
TOTAL			19	20	21	22	23	24	25	26	27	
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT									
Telephone Comm System Supt	2E790	SMS										
Telephone and Data Circuitry Equip Crftmn	2E773	MSG	1	1	1	1	1	1	1	1	1	
Telephone and Data Circuitry Equip Crftmn	2E773	TSG	2	2	2	2	2	2	2	2	2	
Telephone and Data Circuitry Equip Jrnymn	2E753	SSG	8	9	9	9	10	10	10	11	11	
Telephone and Data Circuitry Equip Jrnymn	2E753	SRA	9	9	9	10	10	10	11	11	11	
Telephone and Data Circuitry Equip Apr	2E733	A1C	8	8	9	9	9	10	10	10	11	
TOTAL			28	29	30	31	32	33	34	35	36	

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STANDARD MANPOWER TABLE											
WORK CENTER/FAC Telephone Outside Plant Section/38AI CONTRACTOR OR LEASED PLANT			APPLICABILITY MAN-HOUR RANGE 160.7 - 642.8								
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT								
Telephone and Data Circuitry Equip Crftmn	2E773	TSG	1	1	1	1					
Telephone and Data Circuitry Equip Jrnymn	2E753	SSG		1	1	2					
Telephone and Data Circuitry Equip Jrnymn	2E753	SRA			1	1					
TOTAL			1	2	3	4					
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT								
TOTAL											

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. **VARIANCES**

Telephone Installation - Outside Plant Maintenance Section

1. POSITIVE MISSION VARIANCE FOR MAJCOM HEADQUARTERS SUPPORT.

1.1. DEFINITION. Headquarters require additional requirements above normal demands, due to fluctuations in original structure, relocation of data circuits, and constant increased automation to facilitate information flow. This increases the frequency and amount of telephone service requests.

1.2. IMPACT.	Randolph	+363.182 man-hours (+2.26 manpower)
	Langley	+363.182 man-hours (+2.26 manpower)
	Scott	+333.00 man-hours (+2.07 manpower)

1.3. APPLICABILITY. This variance applies to Randolph, Langley and Scott Air Force Bases.

2. POSITIVE MISSION VARIANCE FOR DATA SUPPORT.

2.2. DEFINITION. Installation and maintenance of 2500 non-switched circuits supporting PC III, ATC Intrabase Multi-User Network (AIMNET), and other unique data requirements of HQ AETC, AFMPC, AFMEA, and other headquarters agencies.

2.3. IMPACT. +552.81 man-hours

2.4. APPLICABILITY. This variance applies to Randolph Air Force Base.

3. NEGATIVE TECHNOLOGICAL VARIANCE FOR SINGLE LINE INSTALLATION.

3.1. DEFINITION. Sixty percent of all cable is presently single line. This eliminates the need for repair, and reduces installations, removals, and supply workload.

3.2. IMPACT. - 6 Manpower Authorizations.

3.3. APPLICABILITY. This variance applies to Hurlburt.

PROCESS ANALYSIS SUMMARY

Telephone Installation -Outside Plant Maintenance Section

PROCESS TITLE	CORE MNHRS (PAT)	PROJECTED WKLD (FREQ)	FRAC MNPWR
Travel	.136	1211	1.025
Repairs Equipment	2	149	1.855
Telephone Survey	1.847	57	.655
Installs Circuits (Equals 200 CKTs)	33	10	2.054
Installs Phones (Equals 57 phones)	4	38	.946
Installs Equipment (Equals 75 pieces of Eqmt)	9	15	.840
Installs Cable (Equals 50 cables)	10	20	1.245
Performs Cable Pair Test and Tag	4	3	.075
Removes Circuits	2	16	.199
Removes Phones	4	27	.672
Removes Equipment	6	6	.224
Removes Cables	5	7	.218
Process List of Materials (LOM)	23	1	.143
		Total	10.151